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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,216	03/04/2004	Robert J. Nechvatal	011351.52875US	4152
23911 7590 04/24/2008 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
NGUYEN, XUAN LAN T				
ART UNIT		PAPER NUMBER		
3683				
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04/24/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/792,216

Applicant(s)

NECHVATAL ET AL.

Examiner

Lan Nguyen

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 4, 6-8, 11, 13, 14, 16, 17, 19, 21, 22, 24-26 and 28 is/are pending in the application.
- 4a) Of the above claim(s) 29-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1, 3, 4, 6-8, 11, 13, 14, 16, 17, 19, 21, 22, 24-26 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/24/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: drawings

DETAILED ACTION

Drawings

1. The drawings were received on 1/24/08. These drawings are approved.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 6-8, 11, 13, 14, 16, 17, 19, 21, 22, 24-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davy (US 4061213) in view of Pauwels et al. (US Re. 29509).

Re: claim 1, Davy shows a sensor arrangement, as in the present invention, comprising: a wheel speed sensor 22; and a sensor exciter 20, wherein the sensor exciter is located on a rotor of 10 the air disc brake at the junction of neck portion 16 and friction portion 18; the sensor is disposed adjacent to the exciter, such that the sensor is arranged to detect exciter motion, as shown in figure 1. Davy shows the friction portion 18 to be a solid member while claim 1 requires an air gap. Pauwels teaches a disc brake with a ventilated rotor 28; wherein there is an air gap between the junction of the friction portion 28 and the neck portion 30 toward a longitudinal center of the vehicle axle, and at least a portion of the friction portion facing the shield 68. Note

that Pauwels also places the exciter 42 at the junction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the ventilated disk as taught by Pauwels in the arrangement of Davy in order to take advantage of better heat exhaustion for the brake system which would improve the performance of the brake system as well as prolonging it.

Re: claims 3, 4, 6, 7, 8 and 13, Davy shows the exciter to be integral with the rotor while Pauwels shows the exciter to be a separate ring being attached to the rotor. These are well known ways of incorporating exciters into the brake system. Both Davy and Pauwels show the sensor is located closer to a longitudinal center of the vehicle axle than a neck portion of the brake rotor. Davy shows that the sensor is for anti locking.

Re: claim 11, Pauwels further shows the sensor 100 is located on a bracket 10, which attaches a caliper 65 of the air disc brake to the vehicle axle 12.

Re: claim 14, Davy shows vehicle axle assembly with a disc brake and a sensor arrangement, as in the present invention, comprising: a vehicle axle 14; a disk brake 18 located adjacent to a hub 13 end of the vehicle axle; a wheel speed sensor 22; and a sensor exciter 20, wherein the sensor exciter is located on a rotor 18 of the disc brake at a junction of the neck portion 16 and the friction portion 18; and the sensor is disposed on the vehicle axle adjacent to the exciter, such that the sensor is arranged to detect exciter motion. Davy shows the friction portion 18 to be a solid member while claim 1 requires an air gap. Pauwels teaches a disc brake with a ventilated rotor 28; wherein there is an air gap between the junction of the friction portion 28 and the neck

portion 30 toward a longitudinal center of the vehicle axle, and at least a portion of the friction portion facing the shield 68. Note that Pauwels also places the exciter 42 at the junction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the ventilated disk as taught by Pauwels in the arrangement of Davy in order to take advantage of better heat exhaustion for the brake system which would improve the performance of the brake system as well as prolonging it. Please note Applicant's admittance to the air disc brake system as stated in the Final Rejection dated 4/11/07, paragraph 6.

Re: claims 16 and 17, Davy shows the exciter to be integral with the rotor while Pauwels shows the exciter to be a separate ring being attached to the rotor. These are well known ways of incorporating exciters into the brake system. Both Davy and Pauwels show the sensor is located closer to a longitudinal center of the vehicle axle than a neck portion of the brake rotor.

Re: claim 19, Davy shows a sensor exciter for use with a vehicle axle equipped with a disc brake, as in the present invention, comprising: a sensor exciter 20 configured to generate an electrical signal in a wheel speed sensor 22 affixed to the vehicle axle 14, wherein the sensor exciter is adapted to be located on a rotor 18 of the disc brake at the junction of the neck portion 16 and the friction portion 18. Davy shows the friction portion 18 to be a solid member while claim 1 requires an air gap. Pauwels teaches a disc brake with a ventilated rotor 28; wherein there is an air gap between the junction of the friction portion 28 and the neck portion 30 toward a longitudinal center of the vehicle axle, and at least a portion of the friction portion facing the shield 68. Note

that Pauwels also places the exciter 42 at the junction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the ventilated disk as taught by Pauwels in the arrangement of Davy in order to take advantage of better heat exhaustion for the brake system which would improve the performance of the brake system as well as prolonging it. Please note Applicant's admittance to the air disc brake system as stated in the Final Rejection dated 4/11/07, paragraph 6.

Re: claims 21 and 22, Davy shows the exciter to be integral with the rotor while Pauwels shows the exciter to be a separate ring being attached to the rotor. These are well known ways of incorporating exciters into the brake system. Both Davy and Pauwels show the sensor is located closer to a longitudinal center of the vehicle axle than a neck portion of the brake rotor.

Re: claim 24, Davy shows a brake rotor, as in the present invention, comprising: a brake disc 18 including a friction portion 18 and a neck portion 16, wherein a sensor exciter 20 configured to generate an electrical signal in a wheel speed sensor 22 is located on the brake disc at the junction of the neck portion 16 and the friction portion 18. Davy shows the friction portion 18 to be a solid member while claim 1 requires an air gap. Pauwels teaches a disc brake with a ventilated rotor 28; wherein there is an air gap between the junction of the friction portion 28 and the neck portion 30 toward a longitudinal center of the vehicle axle, and at least a portion of the friction portion facing the shield 68. Note that Pauwels also places the exciter 42 at the junction. It would have been obvious to one of ordinary skill in the art at the time the invention was made

to have employed the ventilated disk as taught by Pauwels in the arrangement of Davy in order to take advantage of better heat exhaustion for the brake system which would improve the performance of the brake system as well as prolonging it.

Re: claims 25 and 26, Davy shows the exciter to be integral with the rotor while Pauwels shows the exciter to be a separate ring being attached to the rotor. These are well known ways of incorporating exciters into the brake system. Both Davy and Pauwels show the sensor is located closer to a longitudinal center of the vehicle axle than a neck portion of the brake rotor.

Re: claim 28, Davy shows a sensor mounting arrangement for use on a vehicle axle equipped with a disc brake, as in the present invention, comprising: a wheel speed sensor 22; and a sensor exciter-detecting portion of the sensor is located at a position corresponding to a location of a sensor exciter 20 arranged on a brake rotor 18 of the disc brake at the junction of the neck portion 16 and the friction portion 18. Davy shows the friction portion 18 to be a solid member while claim 1 requires an air gap. Pauwels teaches a disc brake with a ventilated rotor 28; wherein there is an air gap between the junction of the friction portion 28 and the neck portion 30 toward a longitudinal center of the vehicle axle, and at least a portion of the friction portion facing the shield 68. Note that Pauwels also places the exciter 42 at the junction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the ventilated disk as taught by Pauwels in the arrangement of Davy in order to take advantage of better heat exhaustion for the brake system which would improve the performance of the brake system as well as prolonging it. Please note Applicant's

admittance to the air disc brake system as stated in the Final Rejection dated 4/11/07, paragraph 6. Pauwels further shows and a torque plate 10 for fixing a caliper 65 of the disc brake to the vehicle axle 12, wherein the sensor 100 is held by the torque plate 10 between a brake caliper mounting portion of the torque plate 64 and a vehicle axle 12 attachment portion of the torque plate 10, as shown in figures 1 and 2.

Response to Arguments

4. Applicant's arguments filed 1/24/08 have been fully considered but they are not persuasive.

- Applicant argues that the air gap taught by Pauwels is different than the air gap claimed by Applicant. It is not clear that they are different. Pauwels shows a ventilated friction member as Applicant's ventilated friction member wherein there are two friction discs connected together by veins to provide cooling passages. The ventilated friction member is connected to the neck portion leaving an air gap for the air to vent the friction member. One of ordinary skill in the art, when modify Davy by the teaching of a ventilated friction member of Pauwels would have retained the exciter ring to be integral with the neck portion in order for the brake assembly to work.
- For these reasons, the rejection is still deemed proper and is maintained.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is (571) 272-7121. The examiner can normally be reached on Monday through Friday, 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xuan Lan Nguyen/ 4-23-08
Primary Examiner
Art Unit 3683